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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,846	02/13/2002	John N. Feder	D0079 NP	9057

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EXAMINER	
JIANG, DONG	
ART UNIT	**PAPER NUMBER**
1646	

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/075,846	FEDER ET AL.	
	Examiner	Art Unit	
	Dong Jiang	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/19/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED OFFICE ACTION

Applicant's response and amendment filed on 19 February 2004 is acknowledged and entered. Following the amendment, claims 20 and 37 are amended.

Currently, claims 20-40 are pending and under consideration.

Withdrawal of Objections and Rejections:

The rejection of claims 20-40 under 35 U.S.C. 101, and 35 U.S.C. 112, first paragraph for lack of utility is withdrawn for the following reasons:

At pages 12-18 of the response, applicants cite the prior art reference by Rappold-Hoerbrand (WO 00/58461), wherein a gene positively associated with ataxia is disclosed, and applicants argue that the Rappold-Hoerbrand's ataxia protein (SEQ ID NO:2) is 100% identical to applicants HGRA4, and represents a splice variant of applicants claimed HGRA4sv. Applicants further argue that thus, the present HGRA4sv represents a splice variant of a well-characterized gene, and it also has a credible, substantial and specific utility or well-established utility as any splice variant of that gene would have the same utility since the splice variant is itself from the same gene. This argument is persuasive because the Rappold-Hoerbrand's gene encodes a protein responsible for relating to ataxia, and the presently claimed nucleic acid encoding for HGRA4sv comprises all 9 exons of Rappold-Hoerbrand's gene for ataxia. Thus, the rejections are withdrawn.

The enablement rejection of claim 20 under 35 U.S.C. 112, first paragraph, for not being in compliance with the deposit rule is withdrawn in view of applicant's statement in the response.

The prior art rejections made in the last Office Action are withdrawn in view of applicant's amendment.

Objections and Rejections under 35 U.S.C. §112:

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 20 and the dependent claims 28-40 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for claims limited in scope to an isolated nucleic acid of SEQ ID NO:3, and an isolated nucleic acid encoding SEQ ID NO:4, does not reasonably provide enablement for claims to an isolated nucleic acid encoding at least 225 or amino acids of SEQ ID NO:4, which has glycine receptor activity (claim 20, part (e), claims 28 and 29, for example), or an isolated nucleic acid at least 97% identical to the above nucleotide sequences (claim 37, for example). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims, for the reasons of record set forth in the last Office Action, paper No. 10, mailed on 20 August 2003, at pages 5-6.

Applicants argument filed on 19 February 2004 has been fully considered, but is not deemed persuasive for reasons below.

At pages 20-21 of the response, the applicant argues that applicants have amended claim 20(e) to add the "wherein said encoded polypeptide has glycine receptor activity", thus, the rejection has been rendered moot, that the instant specification does provide an enabling description for how to make % variants (CLUSTAKW global sequence alignment), and that one skilled in the art could make and use the invention based upon the teachings of the specification. This argument is not persuasive for the following reasons. With respect to the new limitation of "wherein said encoded polypeptide has glycine receptor activity" in claim 20, part (e), the specification does not disclose any specific functional activity associated with the HGRA4sv protein, and the prior art has not established how to test a fragment of a glycine receptor subunit for its functional activity. Therefore, the skilled artisan would not be able to make the functional fragments, and test them for a biological activity. Further, as glycine receptor is a pentamer, it is unclear how a fragment of an alpha subunit would possess "glycine receptor activity", and highly unpredictable that such a fragment would possess said activity. Furthermore, the prior art has not established that any glycine receptor subunit by itself would

possess glycine receptor activity. As such, it would require undue experimentation to practice the invention in a manner commensurate in scope with the claim.

With respect to the % variants, the issue is not how to calculate % based on CLUSTAKW program or how to make the sequence variants, rather, the issue is that the specification does not teach one skilled in the art how to make the polynucleotide variants encoding functional variants of the protein having glycine receptor activity as it unclear what is "glycine receptor activity", and how to use such polynucleotide variants for any purpose. The specific and substantial utility established by the prior art reference (WO 00/58461) is that the gene is responsible for disorders relating to ataxia as the chromosomal breakpoint of the patient having ataxia is found to reside within the genomic locus of said gene, which is demonstrated by restriction enzyme analysis of the ataxia cDNA, wherein a band shift was observed in the patient, but not in healthy controls (page 5, the third and fourth paragraphs). Neither the prior art nor the present specification teaches specifically the use of polynucleotide variants of the gene for the purpose of diagnosis or any other purpose. Therefore, undue experimentation would be required prior to use the invention in a manner commensurate in scope with the claim.

Claim 37 remains further rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for the reasons of record set forth in the last Office Action, paper No. 10, mailed on 20 August 2003, at pages 6-7.

Applicants argument filed on 19 February 2004 has been fully considered, but is not deemed persuasive for reasons below.

At page 22 of the response, the applicant argues that applicants believe the rejection has been overcome in light of the amendments, in addition to the teaches of the specification. This argument is not persuasive because the addition of the functional limitation of having glycine receptor activity is invalid for the reasons above, and the specification provides no actual description of the nucleotide sequence of the encompassed variants, nor the structural-functional relationship of the polypeptide encoded by SEQ ID NO:3. In the absence of a specific known

activity of said glycine receptor subunit, the claimed polynucleotide variants do not meet the written description provision of 35 U.S.C. §112, first paragraph.

Claims 20-40 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The newly amended claim 20 recites the limitation of "wherein said encoded polypeptide has glycine receptor activity". However, it is unclear what "glycine receptor activity" is, and the specification does not define such, the metes and bounds of the claims, therefore, cannot be determined. Claim 37 is similarly indefinite.

The remaining claims are rejected for depending from an indefinite claim.

Conclusion:

No claim is allowed.

Advisory Information:

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Dong Jiang whose telephone number is 571-272-0872. The examiner can normally be reached on Monday - Friday from 9:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Lorraine Spector

LORRAINE SPECTOR
PRIMARY EXAMINER

Dong Jiang, Ph.D.
Patent Examiner
AU1646
4/26/04